

Appl. No. 10/766,702

Reply to Office Action of December 5, 2005

IN THE CLAIMS

1. (Previously Amended) A coating composition for applying to substrates subject to incursion of moisture to resist moisture penetration into the substrate coated with the coating, the coating composition prepared by a process comprising:
heating and blending together a mixture comprising waxes and paraffins and dispersing powdered metal, metal oxide, or metal carbide throughout the mixture; and
cooling the mixture to form a waxy solid with powdered metal, metal oxide or metal carbide dispersed therein.
wherein the waxy solid is substantially free of entrained gasses; wherein heating need not be applied to render a coating of the composition homogeneous when applied to a substrate; and wherein moisture incursion into the coated substrate is reduced by at least about 50% as compared to an uncoated substrate under the same temperature and moisture conditions.
2. (Original) The coating composition of claim 1, wherein the mixture comprises a mixture of beeswax and paraffins.
3. (Original) The coating composition of claim 2, wherein the paraffins comprise primarily aliphatic hydrocarbons having chain lengths in the range from about 18 to about 36 carbon atoms.
4. (Original) The coating composition of claim 1, wherein the metal comprises aluminum.
5. (Original) The coating composition of claim 1, wherein the metal oxide comprises titanium oxide or aluminum oxide.
6. (Original) The coating composition of claim 2, wherein the metal comprises aluminum.
7. (Original) The coating composition of claim 2, wherein the metal oxide comprises titanium oxide or aluminum oxide.

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8. (Original) The coating composition of claim 1, wherein the mixture, before addition of powdered metal or metal oxide, has a melting point in the range of about 120 to 200°F.
9. (Original) The coating composition of claim 1, wherein, the composition cools to ambient temperature substantially free of occlusion of gas bubbles.
10. (Original) The coating composition of claim 1, wherein the composition is a solid at temperatures in the range below about 140°F, and liquefies upon heating to a temperature in the range from about 170 to about 190°F.
11. (Original) The coating composition of claim 10, wherein physical properties of the liquefied composition enable application of the composition to a surface by spraying, painting with a brush or roller.
12. (Original) The coating composition of claim 1, wherein the powdered metal or metal oxide or metal carbide comprises a sufficient amount to permit uniform heating of a mass of the composition, and to provide such internal compression of a mass of the composition upon cooling as to substantially exclude occluded gasses from a cooled mass.
13. (Previously Amended) The coating composition of claim 1, wherein the amount of powdered metal or metal oxide comprises from about 5 to about 15 wt. %, based on the weight of the mixture.
14. (Original) The coating composition of claim 1, wherein when coated onto a composite material subject to moisture absorption under hot and wet ambient conditions, the composition reduces moisture absorption by from about 60 to about 100% as compared to an uncoated composite.

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15. (Previously Amended) A coating composition resistant to penetration by moisture, the composition substantially preventing moisture absorption into a composite otherwise subject to moisture absorption under hot and wet ambient conditions, the composition comprising:
- a) a mixture of esters of fatty acids and aliphatic hydrocarbons having a melting point in the range from about 170 to about 190°F; and
 - b) a powdered additive in sufficient amount to permit uniform heating of a mass of the composition and to provide compression of a mass of the composition upon cooling sufficient to substantially exclude occluded gasses from a cooled mass
- wherein the composition comprises a waxy solid at room temperature; and wherein when the molten composition is applied to a substrate to form a coating, the coating does not require heating to render the coating homogeneous.
16. (Original) The coating composition of claim 14, wherein the mixture comprises paraffins and waxes, the paraffins primarily having a chain length of from about 18 to about 36 carbon atoms.
17. (Original) The coating composition of claim 15, wherein the powdered additive is selected from the group consisting of powdered metals, metal carbides and metal oxides.
18. (Original) The coating composition of claim 16, wherein the powdered additive comprises powdered aluminum comprising particulates in the range from about 25 to about 60 microns.
19. (Original) The coating composition of claim 17, wherein the powdered additive is selected from aluminum and titanium oxide.
20. (Original) The coating composition of claim 14, the composition comprising a solid at ambient temperatures in the range below about 140°F.

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21. (Original) The coating composition of claim 14, wherein when coated onto a composite material subject to moisture absorption under ambient conditions of temperature and humidity, the composition reduces moisture absorption by from about 60 to about 100%.